

Project Status Letter PSL Number: PSL_09

Covering period: 04/01-04/07

Prepared by: J. Mahati Hari and Rachel Szteinberg

Task Summary from Previous Week / Proposed Changes:

Please note that the second column describes what was planned to be completed/demonstrated/ able to be fully crossed off the WBS by the time of IPR submission. This, in conjunction with progress slides will determine if subsystems are behind, ahead, or right on schedule. Black implies the task has been completed, red implies that the task is overdue, and orange implies it needs to be investigated further. If there is a change that needs to be made, please notify the project manager. This is referenced with WBS v0.3

TEAM	PREVIOUS WEEK'S SCHEDULED TASKS	TASKS COMPLETED	FURTHER INVESTIGATION	PROPOSED CHANGES
VSCADA	VSC.3.3 [Config UI delivered]	None	VSC.2.1 [Demonstrated maintenance view] - Ready to be demonstrated VSC.3.3 [Demonstrated charging view] - Ready to be demonstrated	None
Cell App	CELL.1.4 [Demonstrated log display] CELL.1.5 [Demonstrated general circular view] CELL.1.6 [demonstrated resizing view] CELL.6.4 [demonstrated dynamically adding layouts] CELL.6.5 [Demonstrated dynamically adding tabs]	No data	No data	No data

DYNO	DYNO.2.3 [Demonstrated addition of MechE parameters] DYNO.2.4 [Demonstrated addition of EE parameters] DYNO.3.8 [Demonstrated CANbus communication] DYNO.3.6 [Integrated with VSCADA]	DYNO.2.3 [Demonstrated addition of MechE parameters] DYNO.2.4 [Demonstrated addition of EE parameters] DYNO.3.8 [Demonstrated CANbus communication] DYNO.3.6 [Integrated with VSCADA]	None	None
TSV	TSV.1.5 [All PackMan boards populated and debugged] TSV.1.6 [Tested PackMan and AMS communication] TSV.2.7 [Debugged 3rd pack] TSV.2.8 [Debugged 4th pack]	TSV 1.6 - [Tested PackMan and AMS communication]	TSV 1.5 [All PackMan boards populated and debugged] - Discrepancy amongst team members- discrepancy among team members- in 'tasks completed' column of one IPR and 'to be completed' in another TSI 2.1 [Panel schematic approved] - This was already crossed off from a previous PSL - was it incomplete?	None
TSI	TSI.1.3. [PCB Fabricated] TSI.2.2 [Panel Fabricated] TSI.2.3 [Panel integrated]	TSI.1.3 [PCB Fabricated] TSI.2.2 [Panel Fabricated] TSI 7.2 [CDR delivered] *This should've been marked off already.	TSI 2.1 [Panel schematic approved]- this was already crossed off from a previous PSL- was it incomplete?	None

Cooling	COOL.1.4 [Block diagram approved] COOL.5.2 [Tested/Implemented Interface with VSCADA]	COOL.1.4 [Block diagram approved]	None	None
Systems Engineering	M.5.1 [Compliance matrix delivered] M.5.2 [Overall integration tests approved] M.5.3 [Individual integration tests approved]	M.5.1 [Compliance matrix delivered] M.5.2 [Overall integration tests approved] M.5.3 [Individual integration tests approved]	None	None
GLV	GLV.3.4 [Functional interior safety loop buttons and switches delivered] GLV.3.5 [functional interior panel LEDs delivered] GLV.3.6 [functional exterior panels safety loop buttons and switches delivered] GLV.4.7 [Tested Safety Loop Connections] GLV.4.8 [Tested Safety Loop Relays] GLV.4.9 [tested Safety Loop LEDs] GLV.4.10 [Tested I2C Functionality] GLV.5.4 [Connector Panels Delivered]	GLV.4.7. [Tested Safety Loop Connections] GLV.4.8[Tested Safety Loop Relays] GLV.4.9 [Tested Safety Loop LEDs] GLV.4.10 [Tested I2C Functionality]	GLV.5.4 [Connector Panels Delivered]- discrepancy among team members- discrepancy among team members- in 'tasks completed' column of one IPR and 'to be completed' in another	None

Interconnect	<p>IC.3.11 [assembled all W20 cables]</p> <p>IC.3.12 [assembled all W21 cables]</p> <p>IC.3.13 [assembled all W22 cables]</p> <p>IC.3.14 [assembled all W23 cables]</p> <p>IC.3.16 [assembled all W25 cables]</p> <p>IC.3.18 [assembled all W28 cables]</p> <p>IC.3.20 [assembled all W32 cables]</p> <p>IC.3.21 [assembled all W33 cables]</p> <p>IC.3.22 [assembled all W34 cables]</p> <p>IC.3.24 [assembled all W36 cables]</p>	<p>IC.3.13 [assembled all W22 cables]</p> <p>IC.3.14 [assembled all W23 cables]</p> <p>IC.3.16[assembled all W25 cables]</p> <p>IC.3.18 [assembled all W28 cables]</p> <p>IC.3.20 [assembled all W32 cables]</p> <p>IC.3.21 [assembled all W33 cables]</p> <p>IC.3.22 [assembled all W34 cables]</p> <p>IC.3.24 [assembled all W36 cables]</p>	<p>IC.3.5[assembled all W7 cables] - discrepancy among team members- in 'tasks completed' column of one IPR and 'to be completed' in another</p>	None
Car Physics Investigation	<p>PHYS.3.1[Derivation for current model delivered]</p> <p>PHYS.3.2 [Derivation for motor speed model delivered]</p>	None	None	None
JGB	<p>JGB.1.1 [Demonstrated keyboard to CAN communication]</p> <p>JGB.1.2 [CAN dump demonstrated]</p>	None	None	None
MGMT	M.5.7 [WBS_v3 Delivered]	M.5.7 [WBS_v3 Delivered]	None	None

Plan for next week:

TEAM	THIS WEEK'S SCHEDULED TASKS	TASKS TO BE COMPLETED
VSCADA	VSC.2.1 [Demonstrated maintenance view] VSC.5.1 [Demonstrated I2C protocol for GLV communication] VSC.5.4 [Demonstrated soft throttle with DYNO]	VSC.5.1 [Demonstrated I2C protocol for GLV communication] VSC.5.4 [Demonstrated soft throttle with DYNO] VSC.2.1 [Demonstrated maintenance view] VSC.2.2 [Demonstrated drive view] VSC.2.3 [Demonstrated charging view] VSC.3.3[config UI delivered]
Cell App	No tasks planned	No data
DYNO	DYNO.3.4 [Integrated with cooling system] DYNO.3.5[integrated with GLV - full safety loop] DYNO.3.7 [Integrated with TSI]	DYNO.5.3 [User Manual delivered] DYNO.5.4 [Maintenance manual delivered] DYNO.3.4 [Integrated with cooling system] DYNO.3.5 [integrated with GLV- full safety loop] DYNO.3.6 [integrated with VSCADA]
TSV	TSV.3.3 [testing of integrated AMS with load]	TSV 1.5 [All PackMan boards populated and debugged] TSV.2.7 [Debugged 3rd pack] TSV.2.8[Debugged 4th pack]
TSI	TSI.1.4[PCB debugged] TSI.1.5[PCB testing/integration approved-drive critical components] TSI.3.2[API documented] TSI.3.3[Drive button logic integrated] TSI.4.2[Precharge Relay/HV cabling mounted] TSI.4.3[Circuit boards mounted] TSI.4.4[properly wired] TSI.4.5[mounted current sensor TSV bars] TSI.5.2 [Integrated physical box] TSI.5.3[integrated brake interface] TSI.5.4[integrated throttle interface]	TSI.1.4 [PCB debugged]

	TSI.5.5[integrated VSCADA interface] TSI.5.6[integrated with cockpit]	
Cooling	No tasks planned	COOL.1.1 [Drawing of mounting delivered]
Systems Engineering	M.5.4 [photograph evidence annotated] M.5.5 [Subsystem integration tests executed]	M.5.4 [photograph evidence annotated] M.5.5 [Subsystem integration tests executed] TSV 1.5 [All PackMan boards populated and debugged] TSV.2.7 [Debugged 3rd pack] TSV.2.8[Debugged 4th pack]
GLV	GLV.3.7 [HDMI Screen Delivered] GLV.3.8 [VSCADA Buttons Delivered]	GLV.3.4 [Functional Interior Panel Safety Loop Buttons and Switches Delivered] GLV.3.5 [Functional Interior Panel LEDs Delivered] GLV.3.6 [Functional Exterior Panels Safety Loop Buttons and Switches Delivered] GLV.3.7 [HDMI Screen Delivered] GLV.3.8 [VSCADA Buttons Delivered] GLV.5.4 [Connector Panels Delivered]
Interconnect	IC.3.5 [assembled all W7 cables] IC.3.6 [assembled all W11 cables] IC.3.7 [assembled all W12 cables] IC.3.8 [assembled all W13 cables] IC.3.9 [assembled all W15 cables] IC.3.10 [assembled all W18 cables] IC.3.15 [assembled all W24 cables]	IC.3.5 [assembled all W7 cables] IC.3.6 [assembled all W11 cables] IC.3.7 [assembled all W12 cables] IC.3.8 [assembled all W13 cables] IC.3.9 [assembled all W15 cables] IC.3.10 [assembled all W18 cables] IC.3.15 [assembled all W24 cables]
Car Physics Investigation	PHYS.4.4. [Simulated dynamic algorithm] PHYS.4.5 [Simulated static algorithm]	PHYS.4.4. [Simulated dynamic algorithm] PHYS.4.5 [Simulated static algorithm]
JGB	JGB 2.1[Remote to Respond Protocol] JGB 2.2[Demonstrate CAN to PWM] JGB 2.3[Analog to CAN Data Retrieval]	JGB 2.1[Remote to Respond Protocol] JGB 2.2[Demonstrate CAN to PWM] JGB 2.3[Analog to CAN Data Retrieval] JGB 1.1[Keyboard to CAN communication] JGB 1.2[CAN Dump Demonstration]
MGMT	No tasks planned	Weekly tasks of ordering, receiving, updating website, and updating WBS

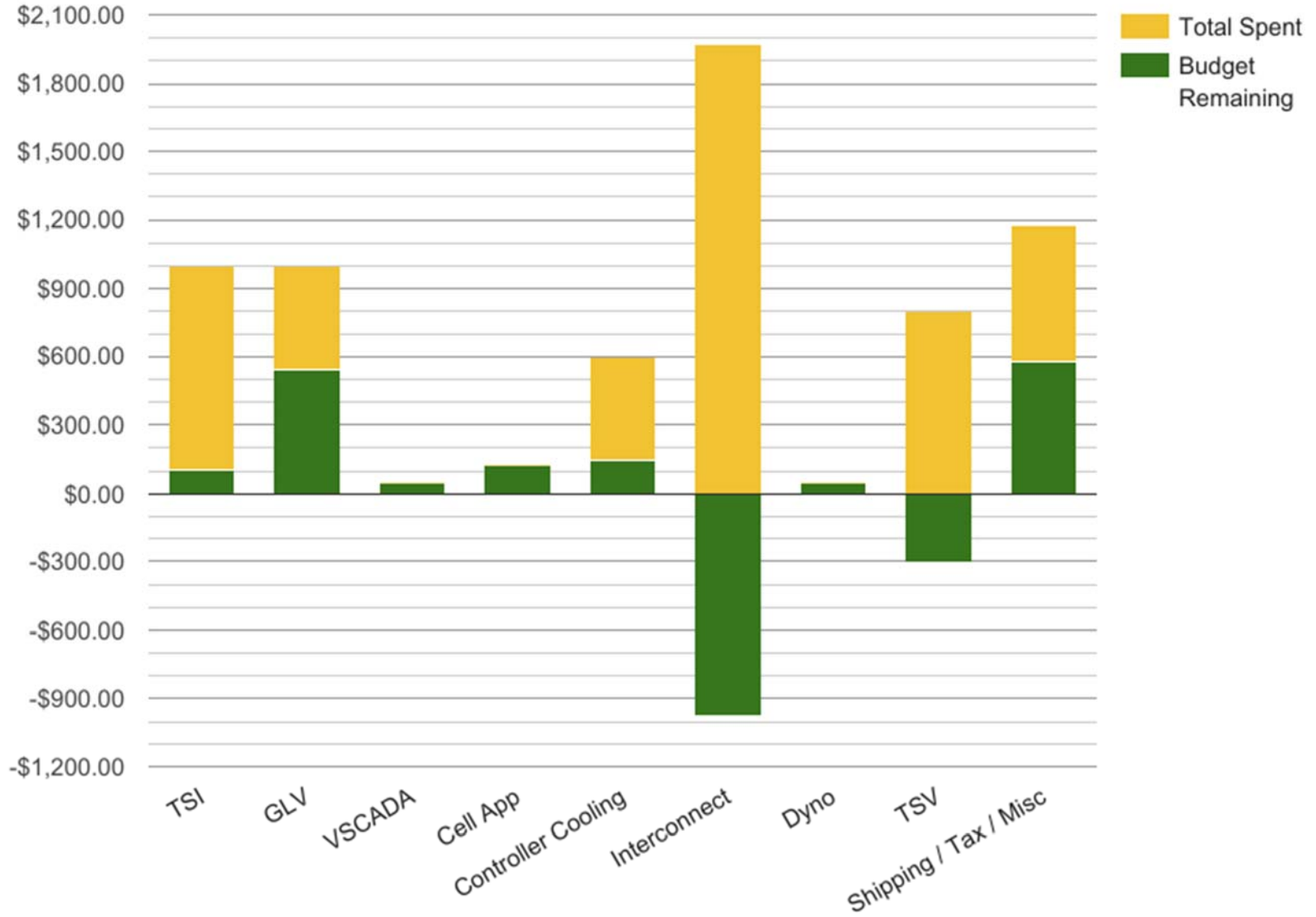
Cost Summary:

Subsystem	Spent this period	Spent to date	Budget Allocated	Budget Remaining	Percentage Spent
TSI	\$139.90	\$894.03	\$1,000	\$105.97	89.40%
GLV	\$18.34	\$461.34	\$1,000	\$538.66	46.13%
VSCADA	\$0.00	\$0	\$50	\$50.00	0.00%
Cell App	\$0.00	\$0	\$125	\$125.00	0.00%
Controller Cooling System	\$0.00	\$452.92	\$600	\$147.08	75.49%
Interconnect / Cabling / ICD	\$0.00	\$1,972.63	\$1,000	-\$972.63	197.26%
Dyno	\$0.00	\$0	\$50	\$50.00	0.00%
TSV	\$91.10	\$804.30	\$500	-\$304.30	160.86%
Physics & Cruise Control	\$0.00	\$0	\$0	-	-
JGB	\$0.00	\$0	\$0	-	-
Shipping / Tax / Misc	\$18.99	\$595.81	\$1,175	\$579.19	50.71%
Total	\$268.33	\$5,181.03	\$5,500	\$318.97	94.20%

Although some teams are overbudget, they are monetarily balanced by teams that are underbudget or were given emergency funds in the initial budget allocations. For the teams that are overbudget, all future purchases will be extensively looked into to ensure that the item itself is not already available on our floor and that the quantity ordered is needed.

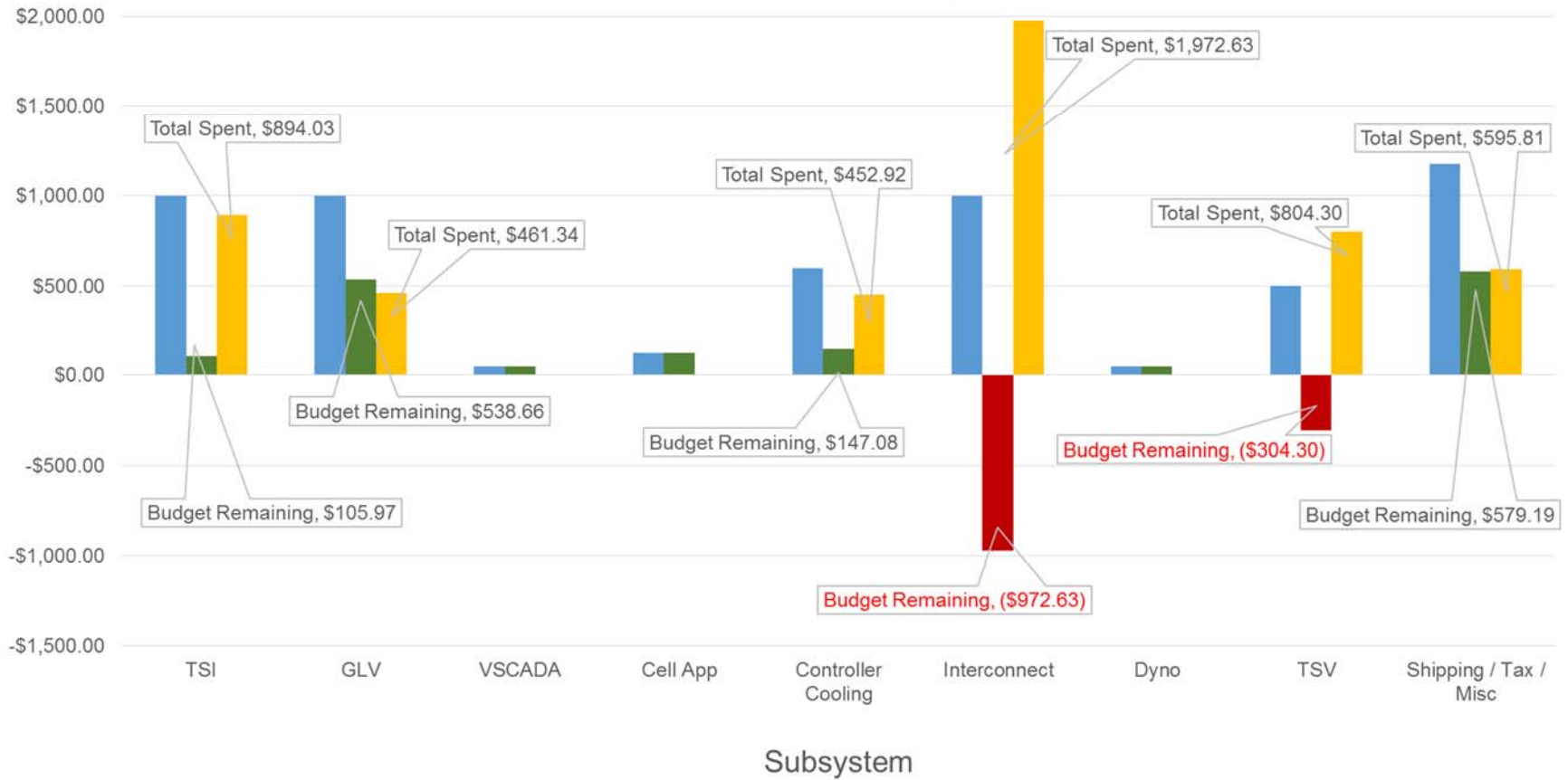
The Shipping/Tax/Misc section accounts for the known shipping/tax of orders sent this week (any unknown fees will be accounted for in future PSLs and the website), as well as the \$10 printing fee for the WBS v0.3.

Subsystem Budget Spending



Budget Spending

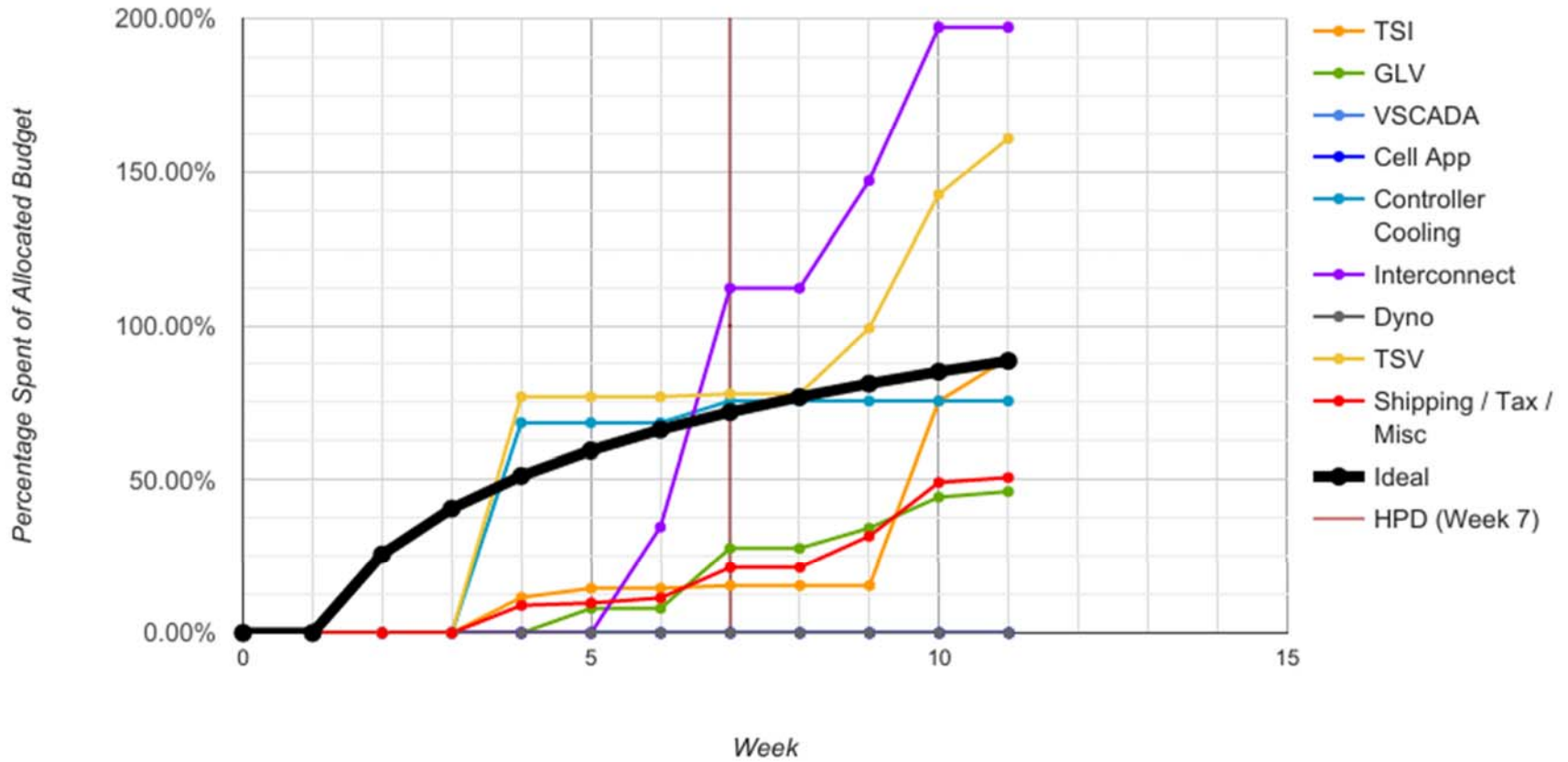
■ Allocated Budget ■ Budget Remaining ■ Total Spent



Total Spent

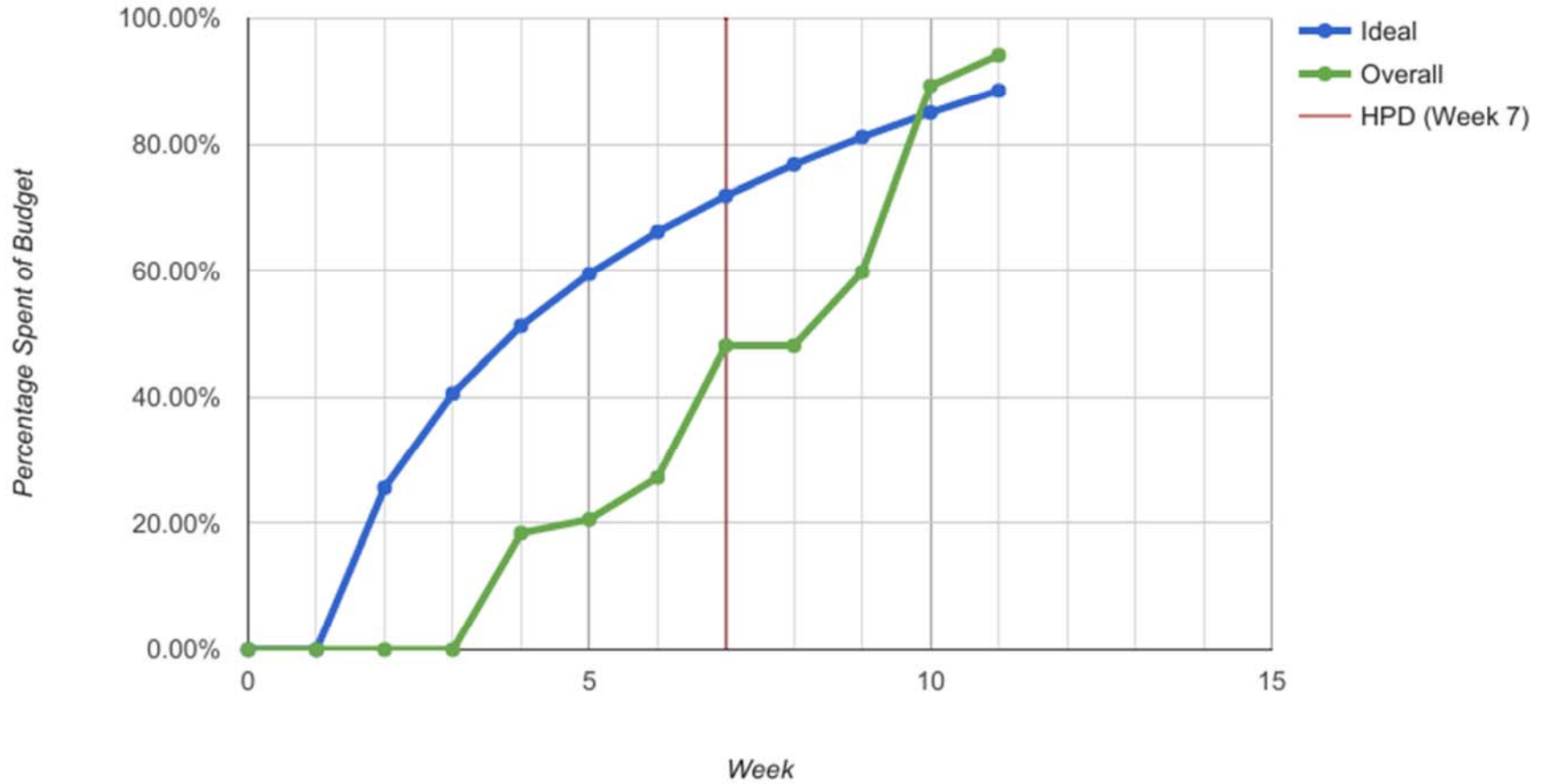


Percentage Spent of Subsystem Budget Allocations



Ideally Spent per Subsystem (by Week 11): 88.55%

Percentage Spent of Total Budget



Ideally Spent Overall (by Week 11): 88.55%

Receiving Report:

The following items were all received during this period:

Purchase Order #26 – TSV (Department) – AA Portable Power Corp – Pack Cells (Appendix II)

Purchase Order #27 – GLV – Amazon – Digital Display Multimeter (Appendix III)

Purchase Order #28 – GLV – Digikey – DC Converter, Connector, .1uF Caps (Appendix IV)

Purchase Order #30 – TSI/TSV – Mouser – CAN Bus Isolator, AMS Heat Sinks (Appendix V)

Purchase Order #32 – TSV (Department) – Powerwerx – Crimper (Appendix VI)

Purchase Order #33 – TSI – Digikey – PCB Parts (Appendix VII)

Purchase Order #34 – TSV – DFRobot – LCD Displays (Appendix VIII)

Purchase Order #35 – IC* – IEWC – Shielded Double Insulated Cable (Appendix IX)

Purchase Order #36** – IC* – Newark Element 14 – TSV Pack Blue ITT Cannon Line Source/Drain (Appendix X)

Purchase Order #39*** – TSI/GLV – McMaster – Screws, Panel Labels (Appendix XIII)

*IC stands for Interconnect/Cabling/ICD

**Only 1 out of 3 items of Purchase Order #36 have been received

***Only 8 out of 10 items of Purchase Order #39 have been received

Req #	Team	Vendor	Vendor PN	Qty	Item Description	Ordered Date	Received Date
26	TSV	AA Portable Power Corp	LFP-G60	3	Heavy Duty Power Connectors PP15/45 PREMATE HSG ONLY GRN -BULK	28-Mar -17	5-Apr -17
27	GLV	Amazon	PZEM-031	1	Digital Display Multimeter	29-Mar -17	5-Apr -17
28	GLV	Digikey	102-2927-ND	1	DC/DC CONVERTER 5V 20W	29-Mar -17	5-Apr -17
28	GLV	Digikey	AE10921-ND	1	CONN D-SUB RCPT 9POS R/A SOLDER	29-Mar -17	5-Apr -17
28	GLV	Digikey	399-1170-1-ND	1000	CAP CER 0.1UF 50V X7R 0805	29-Mar -17	5-Apr -17
30	TSI	Mouser	600-CANOP	1	Interface Modules CAN OPTICAL REPEATER W/TB	29-Mar -17	5-Apr -17
30	TSV	Mouser	567-657-10ABPE	29	Heat Sinks HI PERF VERT Board MTG TO220/227/218 RoHS Compliant	29-Mar -17	5-Apr -17
32	TSV	Powerwerx	TRICrimp	1	TRICrimp, the best crimping tool for Powerpole for 15, 30 and 45 amp contacts	29-Mar -17	5-Apr -17
33	TSI	Digikey	102-3865-ND	2	DC/DC CONVERTER 5V 10W	29-Mar -17	5-Apr -17

33	TSI	Digikey	102-2728-ND	2	CONVERT DC/DC 2W 12V 167MA OUT	29-Mar -17	5-Apr -17
33	TSI	Digikey	1715-1676-1-ND	3	SWITCH PUSH SPST-NO 0.1A 42V	29-Mar -17	5-Apr -17
33	TSI	Digikey	296-39512-1-ND	3	IC ANLG SW SPDT SOT23-6	29-Mar -17	5-Apr -17
33	TSI	Digikey	296-40259-1-ND	3	IC GATE NAND 1CH 8-INP 14-SOIC	29-Mar -17	5-Apr -17
33	TSI	Digikey	296-4180-1-ND	3	SENSOR TEMPERATURE SPI SOT23-5	29-Mar -17	5-Apr -17
33	TSI	Digikey	311-120CRCT-ND	25	RES SMD 120 OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	311-47.0KCRCT-ND	25	RES SMD 47K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	399-1108-1-ND	25	CAP CER 10PF 50V NP0 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	401-2001-ND	5	SWITCH SLIDE DPDT 300MA 6V	29-Mar -17	5-Apr -17
33	TSI	Digikey	475-1278-1-ND	10	LED RED DIFFUSED 0805 SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	475-1410-1-ND	10	LED GREEN DIFFUSED 0805 SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	475-2560-1-ND	10	LED YELLOW DIFFUSED 0805 SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	490-10515-1-ND	10	CAP CER 10UF 35V X5R 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	490-3550-1-ND	3	CAP CER 1UF 250V X7R 2220	29-Mar -17	5-Apr -17
33	TSI	Digikey	490-6538-1-ND	3	CAP CER 47UF 16V X5R 1210	29-Mar -17	5-Apr -17
33	TSI	Digikey	497-10252-1-ND	6	IC OPAMP GP 1.4MHZ RRO 8SO	29-Mar -17	5-Apr -17
33	TSI	Digikey	497-2271-1-ND	4	IC COMP LP DUAL CMOS VOLT 8 SOIC	29-Mar -17	5-Apr -17
33	TSI	Digikey	516-1445-1-ND	10	LED BLUE DIFFUSED 0805 SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	516-2578-5-ND	4	IC OPAMP ISOLATION 100KHZ 8SO	29-Mar -17	5-Apr -17
33	TSI	Digikey	587-1293-1-ND	10	CAP CER 2.2UF 16V X5R 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	587-2004-1-ND	3	FIXED IND 100UH 1A 377 MOHM SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	609-4054-ND	2	CONN HEADER 10POS DUAL SHRD SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	887-1741-1-ND	3	CRYSTAL 10.0000MHZ 12PF SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	A113980-ND	2	CONN RCPT 2POS 11.18MM PCB SLDR	29-Mar -17	5-Apr -17
33	TSI	Digikey	AT90CAN128-16AURCT-ND	3	IC MCU 8BIT 128KB FLASH 64TQFP	29-Mar -17	5-Apr -17
33	TSI	Digikey	LTC3638EMSE#PBF-ND	3	IC REG BUCK ADJ 0.25A 16MSOP	29-Mar -17	5-Apr -17
33	TSI	Digikey	MCP2551-I/SN-ND	3	IC TRANSCEIVER CAN HI-SPD 8-SOIC	29-Mar -17	5-Apr -17

33	TSI	Digikey	MCP6001T-I/OTCT-ND	4	IC OPAMP GP 1MHZ RRO SOT23-5	29-Mar -17	5-Apr -17
33	TSI	Digikey	MCP6002T-I/SNCT-ND	4	IC OPAMP GP 1MHZ RRO 8SOIC	29-Mar -17	5-Apr -17
33	TSI	Digikey	MCP6004T-I/SLCT-ND	6	IC OPAMP GP RRO 1MHZ 14-SOIC	29-Mar -17	5-Apr -17
33	TSI	Digikey	MMBF170CT-ND	10	MOSFET N-CH 60V 500MA SOT-23	29-Mar -17	5-Apr -17
33	TSI	Digikey	P1.00KCCT-ND	25	RES SMD 1K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P10.0KCCT-ND	100	RES SMD 10K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P100KCCT-ND	25	RES SMD 100K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P137KCCT-ND	25	RES SMD 137K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P196CCT-ND	25	RES SMD 196 OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P2.00KCCT-ND	25	RES SMD 2K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P4.75KCCT-ND	25	RES SMD 4.75K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P499DACT-ND	25	RES SMD 499 OHM 0.1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P665KCCT-ND	25	RES SMD 665K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P750KCCT-ND	25	RES SMD 750K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P9.31KCCT-ND	25	RES SMD 9.31K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	SK310A-LTPMSCT-ND	4	DIODE SCHOTTKY 100V 3A DO214AC	29-Mar -17	5-Apr -17
33	TSI	Digikey	TLP293(GB-TPLECT-ND	25	OPTOISOLATOR 3.75KV TRANS 4-SO	29-Mar -17	5-Apr -17
33	TSI	Digikey	WM14741-ND	2	QF50 SRD HDR VT .1AU 20POS	29-Mar -17	5-Apr -17
33	TSI	Digikey	WM3789CT-ND	2	CONN MOD JACK 6P6C VERT UNSHLD	29-Mar -17	5-Apr -17
33	TSI	Digikey	WM4128-ND	2	CONN HEADER 8POS .100 VERT 30AU	29-Mar -17	5-Apr -17
33	TSI	Digikey	WM4802-ND	2	CONN HEADER 4POS .100 VERT GOLD	29-Mar -17	5-Apr -17
33	TSI	Digikey	WM8632-ND	2	CONN HEADER 14POS 2.54MM VERT	29-Mar -17	5-Apr -17
33	TSI	Digikey	Z5375-ND	4	JUMPER PLUG 3POS SING ROW	29-Mar -17	5-Apr -17
33	TSI	Digikey	ZVP4525GCT-ND	4	MOSFET P-CH 250V 0.265A SOT223	29-Mar -17	5-Apr -17
33	TSI	Digikey	LM7810ACT-ND	4	IC REG LDO 10V 1A TO220-3	29-Mar -17	5-Apr -17
33	TSI	Digikey	311-150CRCT-ND	50	RES SMD 150 OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	399-1122-1-ND	25	CAP CER 100PF 50V NP0 0805	29-Mar -17	5-Apr -17

33	TSI	Digikey	P150KCCT-ND	50	RES SMD 150K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P16KACT-ND	50	RES SMD 16K OHM 5% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P24.9KCCT-ND	50	RES SMD 24.9K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P249KCCT-ND	50	RES SMD 249K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P330CCT-ND	25	RES SMD 330 OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	350-4050-ND	3	LED PANEL INDCATOR RED 24V	29-Mar -17	5-Apr -17
33	TSI	Digikey	350-4053-ND	3	LED PANEL INDCATOR GREEN 24V	29-Mar -17	5-Apr -17
33	TSI	Digikey	102-3865-ND	2	DC/DC CONVERTER 5V 10W	29-Mar -17	5-Apr -17
33	TSI	Digikey	102-2728-ND	2	CONVERT DC/DC 2W 12V 167MA OUT	29-Mar -17	5-Apr -17
33	TSI	Digikey	1715-1676-1-ND	3	SWITCH PUSH SPST-NO 0.1A 42V	29-Mar -17	5-Apr -17
33	TSI	Digikey	296-39512-1-ND	3	IC ANLG SW SPDT SOT23-6	29-Mar -17	5-Apr -17
33	TSI	Digikey	296-40259-1-ND	3	IC GATE NAND 1CH 8-INP 14-SOIC	29-Mar -17	5-Apr -17
33	TSI	Digikey	296-4180-1-ND	3	SENSOR TEMPERATURE SPI SOT23-5	29-Mar -17	5-Apr -17
33	TSI	Digikey	311-120CRCT-ND	25	RES SMD 120 OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	311-47.0KCRCT-ND	25	RES SMD 47K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	399-1108-1-ND	25	CAP CER 10PF 50V NP0 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	401-2001-ND	5	SWITCH SLIDE DPDT 300MA 6V	29-Mar -17	5-Apr -17
33	TSI	Digikey	475-1278-1-ND	10	LED RED DIFFUSED 0805 SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	475-1410-1-ND	10	LED GREEN DIFFUSED 0805 SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	475-2560-1-ND	10	LED YELLOW DIFFUSED 0805 SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	490-10515-1-ND	10	CAP CER 10UF 35V X5R 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	490-3550-1-ND	3	CAP CER 1UF 250V X7R 2220	29-Mar -17	5-Apr -17
33	TSI	Digikey	490-6538-1-ND	3	CAP CER 47UF 16V X5R 1210	29-Mar -17	5-Apr -17
33	TSI	Digikey	497-10252-1-ND	6	IC OPAMP GP 1.4MHZ RRO 8SO	29-Mar -17	5-Apr -17
33	TSI	Digikey	497-2271-1-ND	4	IC COMP LP DUAL CMOS VOLT 8 SOIC	29-Mar -17	5-Apr -17
33	TSI	Digikey	516-1445-1-ND	10	LED BLUE DIFFUSED 0805 SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	516-2578-5-ND	4	IC OPAMP ISOLATION 100KHZ 8SO	29-Mar -17	5-Apr -17
33	TSI	Digikey	587-1293-1-ND	10	CAP CER 2.2UF 16V X5R 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	587-2004-1-ND	3	FIXED IND 100UH 1A 377 MOHM SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	609-4054-ND	2	CONN HEADER 10POS DUAL SHRD SMD	29-Mar -17	5-Apr -17

33	TSI	Digikey	887-1741-1-ND	3	CRYSTAL 10.0000MHZ 12PF SMD	29-Mar -17	5-Apr -17
33	TSI	Digikey	A113980-ND	2	CONN RCPT 2POS 11.18MM PCB SLDR	29-Mar -17	5-Apr -17
33	TSI	Digikey	AT90CAN128-16AURCT-ND	3	IC MCU 8BIT 128KB FLASH 64TQFP	29-Mar -17	5-Apr -17
33	TSI	Digikey	LTC3638EMSE#PBF-ND	3	IC REG BUCK ADJ 0.25A 16MSOP	29-Mar -17	5-Apr -17
33	TSI	Digikey	MCP2551-I/SN-ND	3	IC TRANSCEIVER CAN HI-SPD 8-SOIC	29-Mar -17	5-Apr -17
33	TSI	Digikey	MCP6001T-I/OTCT-ND	4	IC OPAMP GP 1MHZ RRO SOT23-5	29-Mar -17	5-Apr -17
33	TSI	Digikey	MCP6002T-I/SNCT-ND	4	IC OPAMP GP 1MHZ RRO 8SOIC	29-Mar -17	5-Apr -17
33	TSI	Digikey	MCP6004T-I/SLCT-ND	6	IC OPAMP GP RRO 1MHZ 14-SOIC	29-Mar -17	5-Apr -17
33	TSI	Digikey	MMBF170CT-ND	10	MOSFET N-CH 60V 500MA SOT-23	29-Mar -17	5-Apr -17
33	TSI	Digikey	P1.00KCCT-ND	25	RES SMD 1K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P10.0KCCT-ND	100	RES SMD 10K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P100KCCT-ND	25	RES SMD 100K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P137KCCT-ND	25	RES SMD 137K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P196CCT-ND	25	RES SMD 196 OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P2.00KCCT-ND	25	RES SMD 2K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P4.75KCCT-ND	25	RES SMD 4.75K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P499DACT-ND	25	RES SMD 499 OHM 0.1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P665KCCT-ND	25	RES SMD 665K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P750KCCT-ND	25	RES SMD 750K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P9.31KCCT-ND	25	RES SMD 9.31K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	SK310A-LTPMSCT-ND	4	DIODE SCHOTTKY 100V 3A DO214AC	29-Mar -17	5-Apr -17
33	TSI	Digikey	TLP293(GB-TPLECT-ND	25	OPTOISOLATOR 3.75KV TRANS 4-SO	29-Mar -17	5-Apr -17
33	TSI	Digikey	WM14741-ND	2	QF50 SRD HDR VT .1AU 20POS	29-Mar -17	5-Apr -17
33	TSI	Digikey	WM3789CT-ND	2	CONN MOD JACK 6P6C VERT UNSHLD	29-Mar -17	5-Apr -17

33	TSI	Digikey	WM4128-ND	2	CONN HEADER 8POS .100 VERT 30AU	29-Mar -17	5-Apr -17
33	TSI	Digikey	WM4802-ND	2	CONN HEADER 4POS .100 VERT GOLD	29-Mar -17	5-Apr -17
33	TSI	Digikey	WM8632-ND	2	CONN HEADER 14POS 2.54MM VERT	29-Mar -17	5-Apr -17
33	TSI	Digikey	Z5375-ND	4	JUMPER PLUG 3POS SING ROW	29-Mar -17	5-Apr -17
33	TSI	Digikey	ZVP4525GCT-ND	4	MOSFET P-CH 250V 0.265A SOT223	29-Mar -17	5-Apr -17
33	TSI	Digikey	LM7810ACT-ND	4	IC REG LDO 10V 1A TO220-3	29-Mar -17	5-Apr -17
33	TSI	Digikey	311-150CRCT-ND	50	RES SMD 150 OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	399-1122-1-ND	25	CAP CER 100PF 50V NP0 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P150KCCT-ND	50	RES SMD 150K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P16KACT-ND	50	RES SMD 16K OHM 5% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P24.9KCCT-ND	50	RES SMD 24.9K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P249KCCT-ND	50	RES SMD 249K OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	P330CCT-ND	25	RES SMD 330 OHM 1% 1/8W 0805	29-Mar -17	5-Apr -17
33	TSI	Digikey	350-4050-ND	3	LED PANEL INDICATOR RED 24V	29-Mar -17	5-Apr -17
33	TSI	Digikey	350-4053-ND	3	LED PANEL INDICATOR GREEN 24V	29-Mar -17	5-Apr -17
34	TSV	DFRobot	DFR0154	2	I2C 20x4 Arduino LCD Display Module	30-Mar-17	5-Apr -17
35	IC	IEWC	EXRAD2/0-XLEOBS	30ft	Single-Shielded Double-Insulated Cable EXRAD2/0-XLEOBS-5 (2/0 1254B IRRAD EXRAD OBS 150C 600V ORG)	30-Mar-17	5-Apr -17
36	IC	Newark – Element14	44W4336	2	ITT CANNON LINE DRAIN, NEUTRAL, BLUE, 400A	30-Mar-17	5-Apr -17
36	IC	Newark – Element14	44W4346	1	ITT CANNON LINE SOURCE, NEUTRAL, BLUE, 400A	30-Mar-17	5-Apr -17
36	IC	Newark – Element14	64W3407	3	VEAM REDUCTION SLEEVE R70	30-Mar-17	5-Apr -17
39	TSI	McMaster	95117A433	1	Press-Fit Nut for Soft Metal and Plastic (pack of 50)	5-Apr -17	6-Apr -17
39	TSI	McMaster	90272A145	1	Steel Phillips Rounded Head Screw (pack of 100)	5-Apr -17	6-Apr -17
39	TSI	McMaster	94335A147	3	Electrical-Insulating Female Threaded Standoff (2")	5-Apr -17	6-Apr -17
39	TSI	McMaster	94335A125	10	Electrical-Insulating Female Threaded Standoff (1/2")	5-Apr -17	6-Apr -17

39	TSI	McMaster	8975K11	1	6061 Aluminum (1')	5-Apr -17	6-Apr -17
39	TSI	McMaster	92095A452	1	18-8 Stainless Steel Hex Drive Rounded Head Screw M2 0.4mm Thread 5mm Long	5-Apr -17	6-Apr -17
39	GLV	McMaster	93635A156	1	M5 x .8mm screws 10mm long	5-Apr -17	6-Apr -17
39	GLV	McMaster	90272A194	1	8-32 Thread Size Phillips Head Rounded Screws	5-Apr -17	6-Apr -17

Purchase Requests:

The following items were ordered during this period:

Purchase Order #37 – TSV – Digikey – AMS Board Parts (Appendix XI)

Purchase Order #38 – TSI – Mouser – Potentiometers, Knobs/Dials, Switches (Appendix XII)

Purchase Order #39 – TSI/GLV – McMaster – Screws, Panel Labels (Appendix XIII)

Purchase Order #40 – TSV/TSI – GMW Associates – Bus Bar Current Sensors (Appendix XIV)

Req #	Team	Vendor	Vendor PN	Qty	Item Description	Ordered Date
37	TSV	Digikey	PWR220T-20-R750F-ND	5	RES 0.75 OHM 20W 1% TO220	5-Apr -17
37	TSV	Digikey	MBR0520LCT-ND	20	DIODE SCHOTTKY 20V 500MA SOD123	5-Apr -17
37	TSV	Digikey	P470ACT-ND	100	RES SMD 470 OHM 5% 1/8W 0805	5-Apr -17
37	TSV	Digikey	P100KCCT-ND	50	RES SMD 100K OHM 1% 1/8W 0805	5-Apr -17
37	TSV	Digikey	450-2055-1-ND	10	SWITCH TACTILE SPST-NO 0.05A 24V	5-Apr -17
37	TSV	Digikey	36-655-ND	10	BANANA PLUG .500" 6-32 EXT THD	5-Apr -17
38	TSI	Mouser	652-PTA4432015CPB202	10	Slide Potentiometers 2K LINEAR	5-Apr -17
38	TSI	Mouser	450-SL4514	2	Knobs & Dials SLIDE CNTRL GY/BK	5-Apr -17
38	TSI	Mouser	629-GPB507A05BR	1	Pushbutton Switches Off-(On) Red	5-Apr -17
39	TSI	McMaster	95117A433	1	Press-Fit Nut for Soft Metal and Plastic (pack of 50)	5-Apr -17
39	TSI	McMaster	90272A145	1	Steel Phillips Rounded Head Screw (pack of 100)	5-Apr -17
39	TSI	McMaster	94335A147	3	Electrical-Insulating Female Threaded Standoff (2")	5-Apr -17
39	TSI	McMaster	94335A125	10	Electrical-Insulating Female Threaded Standoff (1/2")	5-Apr -17
39	TSI	McMaster	8975K11	1	6061 Aluminum (1')	5-Apr -17
39	TSI	McMaster	92095A452	1	18-8 Stainless Steel Hex Drive Rounded Head Screw M2 x 0.4 mm Thread 5 mm Long	5-Apr -17

39	TSI	McMaster	8216T77	1	3" Made to Order Peel and Stick (set message as TSI, color Black)	5-Apr -17
39	GLV	McMaster	8216T77	1	3" Made to Order Peel and Stick (set message to GLV, color Black)	5-Apr -17
39	GLV	McMaster	93635A156	1	M5 x .8mm screws 10mm long	5-Apr -17
39	GLV	McMaster	90272A194	1	8-32 Thread Size Phillips Head Rounded Screws	5-Apr -17
40	TSV TSI	GMW Associates	BBM-01	2	Bus Bar Module DC Current Sensor	5-Apr -17

Outstanding Orders:

The following items have been ordered but have not yet been received:

Purchase Order #23 – IC* – Cable Ties and More – Heat Shrink, Wire Loom (Appendix I)

Purchase Order #36** – IC* – Newark Element 14 – TSV Pack Blue ITT Cannon Line Source/Drain (Appendix X)

Purchase Order #37 – TSV – Digikey – AMS Board Parts (Appendix XI)

Purchase Order #38 – TSI – Mouser – Potentiometers, Knobs/Dials, Switches (Appendix XII)

Purchase Order #39*** – TSI/GLV – McMaster – Screws, Panel Labels (Appendix XIII)

Purchase Order #40 – TSV/TSI – GMW Associates – Bus Bar Current Sensors (Appendix XIV)

*IC stands for Interconnect/Cabling/ICD

**Only 1 out of 3 items of Purchase Order #36 have been received

***Only 6 out of 8 items of Purchase Order #39 have been received

Req #	Team	Vendor	Vendor PN	Qty	Item Description	Ordered Date
23	IC	Cable Ties and More	HSK3-1-KIT-BK	1	3:1 Shrink Black 6 sizes, 110 pcs 6" Length	23-Mar-17
23	IC	Cable Ties and More	WL923	1	3/4" Diameter Split Wire Loom 100' Roll	23-Mar-17
36	IC	Newark-Element14	44W4336	2	ITT CANNON LINE DRAIN, NEUTRAL, BLUE, 400A	30-Mar-17
36	IC	Newark-Element14	44W4346	1	ITT CANNON LINE SOURCE, NEUTRAL, BLUE, 400A	30-Mar-17
37	TSV	Digikey	PWR220T-20-R750F-ND	5	RES 0.75 OHM 20W 1% TO220	5-Apr -17
37	TSV	Digikey	MBR0520LCT-ND	20	DIODE SCHOTTKY 20V 500MA SOD123	5-Apr -17
37	TSV	Digikey	P470ACT-ND	100	RES SMD 470 OHM 5% 1/8W 0805	5-Apr -17
37	TSV	Digikey	P100KCCT-ND	50	RES SMD 100K OHM 1% 1/8W 0805	5-Apr -17
37	TSV	Digikey	450-2055-1-ND	10	SWITCH TACTILE SPST-NO 0.05A 24V	5-Apr -17
37	TSV	Digikey	36-655-ND	10	BANANA PLUG .500" 6-32 EXT THD	5-Apr -17
38	TSI	Mouser	652-PTA4432015CPB202	10	Slide Potentiometers 2K LINEAR	5-Apr -17

38	TSI	Mouser	450-SL4514	2	Knobs & Dials SLIDE CNTRL GY/BK	5-Apr -17
38	TSI	Mouser	629-GPB507A05BR	1	Pushbutton Switches Off-(On) Red	5-Apr -17
39	TSI	McMaster	8216T77	1	3" Made to Order Peel and Stick (set message as TSI, color Black)	5-Apr -17
39	GLV	McMaster	8216T77	1	3" Made to Order Peel and Stick (set message to GLV, color Black)	5-Apr -17
40	TSV TSI	GMW Associates	BBM-01	2	Bus Bar Module DC Current Sensor	5-Apr -17

APPENDIX I

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 23

Requested By: IC (Jeremy)
Requested Date: 23-Mar-17
Ship By: Ground

Vendor: Cable Ties And More
Web Site: <http://www.cabletiesandmore.com/>
Phone: 1-877-284-7760

#	Vendor PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	HSK3-1-KIT-BK	3:1 Shrink Black 6 sizes, 110 pcs 6" Length	1	\$42.28	\$42.28	
2	WL923	3/4" Diameter Split Wire Loom 100' Roll	1	\$16.50	\$16.50	

Subtotal:	\$58.78
Shipping Fees:	
Grand Total:	

Instructor Approval: _____

URL: <http://www.cabletiesandmore.com/american/catalog/shrink-black-sizes-length-p-9971.php>
<http://www.cabletiesandmore.com/american/catalog/inside-diameter-split-wire-loom-black-roll-p-187.php>

APPENDIX II

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 26

Requested By: TSV (Emilie)
Requested Date: 28-Mar-17
Ship By: Ground

Vendor: AA Portable Power Corp
Web Site: www.batteryspace.com
Phone: (510) 525-2328

#	Product ID	Part Number	Description	Quantity	Unit Price	Total Price	Rcvd
1	6334	LFP-G60	LiFeMnPO4 Prismatic Module: 3.2V 60 Ah, 10C Rate (192 wh) - UN38.3 Passed	3	\$96.75	\$290.25	5-Apr-17

Subtotal:	\$290.25
Tax / Shipping:	\$30.70
Grand Total:	\$320.95

APPENDIX III

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 27

Requested By: GLV (Joe)
Requested Date: 29-Mar-17
Ship By: Ground

Vendor: Amazon
Web Site: www.amazon.com
Phone: 1 (888) 280-4331

#	Vendor PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	PZEM-031	Digital Display Multimeter	1	\$14.99	\$14.99	5-Apr-17

Subtotal:	\$14.99
Shipping Fees:	\$5.01
Grand Total:	\$20.00

APPENDIX IV

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 28

Requested By: GLV (Chris)
Requested Date: 29-Mar-17
Ship By: Ground

Vendor: Digikey
Web Site: <http://www.digikey.com/>
Phone: 1-800-344-4539

#	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	102-2927-ND	PYB20-Q24-S5	DC/DC CONVERTER 5V 20W	1	\$33.85000	\$33.85	3-Apr-17
2	AE10921-ND	A-DF 09 A/KG-T2S	CONN D-SUB RCPT 9POS R/A SOLDER	1	\$0.77000	\$0.77	3-Apr-17
3	399-1170-1-ND	C0805C104K5RACTU	CAP CER 0.1UF 50V X7R 0805	1000	\$0.01328	\$13.28	3-Apr-17

Subtotal:	\$47.90
Tax / Shipping:	\$8.99
Grand Total:	\$56.89

APPENDIX V

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 30

Requested By: TSI & TSV
Requested Date: 29-Mar-17
Ship By: Ground

Vendor: Mouser
Web Site: <http://www.mouser.com/>
Phone: 218-681-6674

#	Team	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	TSI	600-CANOP	CANOP	Interface Modules CAN OPTICAL REPEATER W/TB	1	\$209.00	\$209.00	3-Apr-17
2	TSV	567-657-10ABPE	657-10ABPE	Heat Sinks HI PERF VERT Board MTG TO220/227/218 RoHS Compliant (FOR AMS BOARD)	29	\$1.04	\$30.16	3-Apr-17

Subtotal:	\$239.16
Shipping Fees:	\$8.74
Grand Total:	\$247.90

APPENDIX VI

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 32

Requested By: TSV (Emilie)
Requested Date: 29-Mar-17
Ship By: Ground

Vendor: Powerwerx
Web Site: www.powerwerx.com
Phone: 888-321-0073

#	Vendor SKU	Description	Quantity	Unit Price	Total Price	Rcvd
1	TRIcrimp	TRIcrimp, the best crimping tool for Powerpole for 15, 30 and 45 amp contacts	1	\$39.99	\$39.99	5-Apr-17

Subtotal:	\$39.99
Shipping Fees:	\$12.78
Grand Total:	\$52.77

APPENDIX VII

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 33

Requested By: TSI (Rachel)
Requested Date: 30-Mar-17
Ship By: Ground

Vendor: Digkey
Web Site: <http://www.digkey.com/>
Phone: 218-681-6674

#	Ref	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	U13	102-3865-ND	PDQ10-Q24-S5-D	DC/DC CONVERTER 5V 10W	2	\$25.8200	\$51.64	5-Apr-17
2	U1	102-2728-ND	PDM2-S24-S12-S	CONVERT DC/DC 2W 12V 167MA OUT	2	\$5.7100	\$11.42	5-Apr-17
3	SW1	1715-1676-1-ND	1.14100.5030000	SWITCH PUSH SPST-NO 0.1A 42V	3	\$2.4000	\$7.20	5-Apr-17
4	SW2	296-39512-1-ND	TS5A3159ODBVRO1	IC ANLG SW SPDT SOT23-6	3	\$0.9800	\$2.94	5-Apr-17
5	U8	296-40259-1-ND	LM95071QIMFX/NOPB	IC GATE NAND 1CH 8-INP 14-SOIC	3	\$2.2800	\$6.84	5-Apr-17
6	U4	296-4180-1-ND	74ACT1103ODR	SENSOR TEMPERATURE SPI SOT23-5	3	\$2.9000	\$8.70	5-Apr-17
7	R44	311-120CRCT-ND	RC0805FR-07120RL	RES SMD 120 OHM 1% 1/8W 0805	25	\$0.0136	\$0.34	5-Apr-17
8	R70	311-47.0KCRCT-ND	RC0805FR-0747K	RES SMD 47K OHM 1% 1/8W 0805	25	\$0.0136	\$0.34	5-Apr-17
9	C5, C6	399-1108-1-ND	C0805C100J5GACTU	CAP CER 10PF 50V NPO 0805	25	\$0.0532	\$1.33	5-Apr-17
10	SW3	401-2001-ND	JS202011CON	SWITCH SLIDE DPDT 300MA 6V	5	\$0.4100	\$2.05	5-Apr-17
11	D3	475-1278-1-ND	LS R976-NR-1	LED RED DIFFUSED 0805 SMD	10	\$0.1900	\$1.90	5-Apr-17
12	D1	475-1410-1-ND	LG R971-KN-1	LED GREEN DIFFUSED 0805 SMD	10	\$0.1800	\$1.80	5-Apr-17
13	D2	475-2560-1-ND	LY R976-PS-36	LED YELLOW DIFFUSED 0805 SMD	10	\$0.2530	\$2.53	5-Apr-17
14	C10, C11, C19	490-10515-1-ND	GRM21BR6YA106ME43L	CAP CER 10UF 35V X5R 0805	10	\$0.2510	\$2.51	5-Apr-17
15	C24	490-3550-1-ND	GRM55DR72E105KW01L	CAP CER 1UF 250V X7R 2220	3	\$0.8500	\$2.55	5-Apr-17
16	C4	490-6538-1-ND	GRM32ER61C476KE15K	CAP CER 47UF 16V X5R 1210	3	\$0.8600	\$2.58	5-Apr-17
17	U6, U18	497-10252-1-ND	TS9121YDT	IC OPAMP GP 1.4MHZ RRO 8SO	6	\$1.5400	\$9.24	5-Apr-17
18	U22	497-2271-1-ND	TS3721DT	IC COMP LP DUAL CMOS VOLT 8 SOIC	4	\$0.6200	\$2.48	5-Apr-17
19	D4	516-1445-1-ND	HSMR-C170	LED BLUE DIFFUSED 0805 SMD	10	\$0.6930	\$6.93	5-Apr-17
20	U19, U20	516-2578-5-ND	ACPL-C870-000E	IC OPAMP ISOLATION 100KHZ 8SO	4	\$5.3900	\$21.56	5-Apr-17
21	C3	587-1293-1-ND	EMK212BJ225KG-T	CAP CER 2.2UF 16V X5R 0805	10	\$0.1140	\$1.14	5-Apr-17
22	L1	587-2004-1-ND	NR8040T101M	FIXED IND 100UH 1A 377 MOHM SMD	3	\$0.6000	\$1.80	5-Apr-17
23	CON1	609-4054-ND	20021521-00010T1LF	CONN HEADER 10POS DUAL SHRD SMD	2	\$1.1100	\$2.22	5-Apr-17
24	Y1	887-1741-1-ND	7A-10.000MAAE-T	CRYSTAL 10.000MHZ 12PF SMD	3	\$0.6600	\$1.98	5-Apr-17
25	P1	A113980-ND	556881-2	CONN RCPT 2POS 11.18MM PCB SLDR	2	\$7.1300	\$14.26	5-Apr-17
26	U7	AT90CAN128-16AURCT-ND	AT90CAN128-16AUR	IC MCU 8BIT 128KB FLASH 64TOFP	3	\$7.6600	\$22.98	5-Apr-17
27	U16	LTC3638EMSE#PBF-ND	LTC3638EMSE#PBF	IC REG BUCK ADJ 0.25A 16MSOP	3	\$7.7900	\$23.37	5-Apr-17
28	U10	MCP2551-I/SN-ND	MCP2551-I/SN	IC TRANSCIEVER CAN HI-SPD 8-SOIC	3	\$1.0500	\$3.15	5-Apr-17
29	U21	MCP6001T-I/OTCT-ND	MCP6001T-I/OT	IC OPAMP GP 1MHZ RRO SOT23-5	4	\$0.2500	\$1.00	5-Apr-17
30	U2	MCP6002T-I/SNCT-ND	MCP6002T-I/SN	IC OPAMP GP 1MHZ RRO 8SOIC	4	\$0.3400	\$1.36	5-Apr-17
31	U3, U17	MCP6004T-I/SLCT-ND	MCP6004T-I/SL	IC OPAMP GP RRO 1MHZ 14-SOIC	6	\$0.4500	\$2.70	5-Apr-17
32	O2, O3	MMBF170CT-ND	MMBF170	MOSFET N-CH 60V 500MA SOT-23	10	\$0.2590	\$2.59	5-Apr-17
33	R37	P1.00KCCT-ND	ERJ-6ENF1001V	RES SMD 1K OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
34		P10.0KCCT-ND	ERJ-6ENF1002V	RES SMD 10K OHM 1% 1/8W 0805	100	\$0.0148	\$1.48	5-Apr-17
35	R24, R30	P100KCCT-ND	ERJ-6ENF1003V	RES SMD 100K OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
36	R10, R36	P137KCCT-ND	ERJ-6ENF1373V	RES SMD 137K OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
37	R77	P196CCT-ND	ERJ-6ENF1960V	RES SMD 196 OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
38	R25, R26	P2.00KCCT-ND	ERJ-6ENF2001V	RES SMD 2K OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
39	R32, R34	P4.75KCCT-ND	ERJ-6ENF4751V	RES SMD 4.75K OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
40	R33, R79, R81, R82, R83	P499DACT-ND	ERA-6AEB4990V	RES SMD 499 OHM 0.1% 1/8W 0805	25	\$0.2096	\$5.24	5-Apr-17
41	R1, R9	P665KCCT-ND	ERJ-6ENF6653V	RES SMD 665K OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
42	R76	P750KCCT-ND	ERJ-6ENF7503V	RES SMD 750K OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
43	R38, R80	P9.31KCCT-ND	ERJ-6ENF9311V	RES SMD 9.31K OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
44	D5	SK310A-LTPMSCT-ND	SK310A-LTP	DIODE SCHOTTKY 100V 3A DO214AC	4	\$0.6000	\$2.40	5-Apr-17
45	U11, U12, U23, U24, U27, U9	TLP293(GB-TPLECT-ND	TLP293(GB-TPL,E	OPTOISOLATOR 3.75KV TRANS 4-SO	25	\$0.3080	\$7.70	5-Apr-17
46	P2	WM14741-ND	906631201	OF50 SRD HDR VT .1AU 20POS	2	\$2.3100	\$4.62	5-Apr-17
47	J5	WM3789CT-ND	855135002	CONN MOD JACK 6P6C VERT UNSHLD	2	\$1.1600	\$2.32	5-Apr-17
48	J1	WM4128-ND	705430112	CONN HEADER 8POS .100 VERT 30AU	2	\$1.8800	\$3.76	5-Apr-17
49	J4	WM4802-ND	705430003	CONN HEADER 4POS .100 VERT GOLD	2	\$0.9400	\$1.88	5-Apr-17
50	P3	WM8632-ND	905711141	CONN HEADER 14POS 2.54MM VERT	2	\$2.4000	\$4.80	5-Apr-17
51	JP1	Z5375-ND	XGBV-0331	JUMPER PLUG 3POS SING ROW	4	\$0.2600	\$1.04	5-Apr-17
52	Q1	ZVP4525GCT-ND	ZVP4525GTA	MOSFET P-CH 250V 0.265A SOT223	4	\$0.7100	\$2.84	5-Apr-17
53	U5	LM7810ACT-ND	LM7810ACT	IC REG LDO 10V 1A TO220-3	4	\$0.6400	\$2.56	5-Apr-17
54	R12, R15, R27	311-150CRCT-ND	RC0805FR-07150RL	RES SMD 150 OHM 1% 1/8W 0805	50	\$0.0104	\$0.52	5-Apr-17
55	C28, C29, C30, C41, C46, C47	399-1122-1-ND	C0805C101J5GACTU	CAP CER 100PF 50V NPO 0805	25	\$0.0368	\$0.92	5-Apr-17
56	R61, R65, R67, R68	P150KCCT-ND	ERJ-6ENF1503V	RES SMD 150K OHM 1% 1/8W 0805	50	\$0.0200	\$1.00	5-Apr-17
57	R45, R47, R49, R53	P16KACT-ND	ERJ-6GEY163V	RES SMD 16K OHM 5% 1/8W 0805	50	\$0.0136	\$0.68	5-Apr-17
58	R54, R55, R58, R64, R66	P24.9KCCT-ND	ERJ-6ENF2492V	RES SMD 24.9K OHM 1% 1/8W 0805	50	\$0.0200	\$1.00	5-Apr-17
59	R16, R19, R2, R20, R51	P249KCCT-ND	ERJ-6ENF2493V	RES SMD 249K OHM 1% 1/8W 0805	50	\$0.0200	\$1.00	5-Apr-17
60	R71, R72, R73, R74	P330CCT-ND	ERJ-6ENF3300V	RES SMD 330 OHM 1% 1/8W 0805	25	\$0.0264	\$0.66	5-Apr-17
61		350-4050-ND	6823135141F	LED PANEL INDICATOR RED 24V	3	\$6.9700	\$20.91	5-Apr-17
62		350-4053-ND	6823235142F	LED PANEL INDICATOR GREEN 24V	3	\$8.9400	\$26.82	5-Apr-17

Subtotal:	\$325.52
Shipping/Tax:	\$14.99
Grand Total:	\$340.51

APPENDIX VIII

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 34

Requested By: TSV (Emilie)
Requested Date: 30-Mar-17
Ship By: Ground

Vendor: DFRobot
Web Site: www.dfrobot.com
Phone: 86-21-61620183

#	Vendor SKU	Description	Quantity	Unit Price	Total Price	Rcvd
1	DFR0154	I2C 20x4 Arduino LCD Display Module	2	\$23.000	\$46.00	5-Apr-17

Subtotal:	\$46.00
Shipping Fees:	\$12.00
Grand Total:	\$58.00

APPENDIX IX

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 35

Requested By: IC (Jeremy)
Requested Date: 30-Mar-17
Ship By: Ground

Vendor: IEWC
Web Site: <http://www.iewc.com/>
Phone: 877-613-4392

#	Vendor PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	EXRAD2/0-XLEOBS	Single-Shielded Double-Insulated Cable EXRAD2/0-XLEOBS-5 (2/0 1254B IRRAD EXTRAD OBS 150C 600V ORG) quote# 20387303	30 feet	\$10.00	\$300.00	5-Apr-17

Subtotal:	\$300.00
Shipping Fees:	\$15.00
Grand Total:	\$315.00

APPENDIX X

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 36

Requested By: IC (Larisa)
Requested Date: 30-Mar-17
Ship By: Ground

Vendor: Newark - Element14
Web Site: www.newark.com
Phone: 9275

#	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	44W4336	NLDFT-N-BL-L-S120-M40A	ITT CANNON LINE DRAIN, NEUTRAL, BLUE, 400A	2	\$56.41	\$112.82	
2	44W4346	NLS-N-BL-S120-M40A	ITT CANNON LINE SOURCE, NEUTRAL, BLUE,	1	\$56.90	\$56.90	
3	64W3407	A00602825	VEAM REDUCTION SLEEVE R70	3	\$10.590	\$31.77	5-Apr-17

Subtotal:	\$201.49
Shipping Fees:	\$0.00
Grand Total:	\$201.49

APPENDIX XI

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 37

Requested By: TSV (Emilie)
Requested Date: 5-Apr-17
Ship By: Ground

Vendor: Digikey
Web Site: <http://www.digikey.com/>
Phone: 218-681-6674

#	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	PWR220T-20-R750F-ND	PWR220T-20-R750F	RES 0.75 OHM 20W 1% TO220	5	\$4.000	\$20.00	
2	MBR0520LCT-ND	MBR0520L	DIODE SCHOTTKY 20V 500MA SOD123	20	\$0.295	\$5.90	
3	P470ACT-ND	ERJ-6GEYJ471V	RES SMD 470 OHM 5% 1/8W 0805	100	\$0.01	\$1.00	
4	P100KCCT-ND	ERJ-6ENF1003V	RES SMD 100K OHM 1% 1/8W 0805	50	\$0.020	\$1.00	
5	450-2055-1-ND	1571563-4	SWITCH TACTILE SPST-NO 0.05A 24V	10	\$0.275	\$2.75	
6	36-655-ND	655	BANANA PLUG .500" 6-32 EXT THD	10	\$2.045	\$20.45	

Subtotal:	\$51.10
Shipping Fees:	
Grand Total:	

Instructor Approval: _____

Digikey Cart URL: <http://www.digikey.com/short/3wzp7h>

APPENDIX XII

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 38

Requested By: TSI (Jack)
Requested Date: 5-Apr-17
Ship By: Ground

Vendor: Mouser
Web Site: www.mouser.com
Phone: (800) 346-6873

#	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	652-PTA4432015CPB202	PTA4543-2015CPB202	Slide Potentiometers 2K LINEAR	10	\$1.01	\$10.10	
2	450-SL4514	450-SL4514	Knobs & Dials SLIDE CNTRL GY/BK	2	\$1.14	\$2.28	
3	629-GPB507A05BR	GPB507A05BR	Pushbutton Switches Off-(On) Pushbutton Red	1	\$2.16	\$2.16	

Subtotal:	\$14.54
Shipping Fees	
Grand Total:	

Instructor Approval: _____

URL: <http://www.mouser.com/ProjectManager/ProjectDetail.aspx?AccessID=d6e1ca6d90>

APPENDIX XIII

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 39

Requested By: TSI /GLV
Requested Date: 5-Apr-17
Ship By: Ground

Vendor: McMaster-Carr
Web Site: <https://www.mcmaster.com/>
Phone: (330) 995-5500

#	Team	Vendor PN	Manufacturer PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	TSI	95117A433	95117A433	Press-Fit Nut for Soft Metal and Plastic (pack of 50)	1	\$12.69	\$12.69	6-Apr-17
2	TSI	90272A145	90272A145	Steel Phillips Rounded Head Screw (pack of 100)	1	\$1.99	\$1.99	6-Apr-17
3	TSI	94335A147	94335A147	Electrical-Insulating Femail Threaded Standoff (2")	3	\$5.76	\$17.28	6-Apr-17
4	TSI	94335A125	94335A125	Electrical-Insulating Femail Threaded Standoff (1/2")	10	\$3.56	\$35.60	6-Apr-17
5	TSI	8975K11	8975K11	6061 Aluminum (1')	1	\$4.42	\$4.42	6-Apr-17
6	TSI	92095A452	92095A452	18-8 Stainless Steel Hex Drive Rounded Head Screw M2 x 0.4 mm Thread 5 mm Long	1	\$6.50	\$6.50	6-Apr-17
7	TSI	8216T77	8216T77	3" Made to Order Peel and Stick (set message to TSI, color Black)	1	\$6.88	\$6.88	
8	GLV	8216T77	8216T77	3" Made to Order Peel and Stick (set message as GLV, color Black)	1	\$6.88	\$6.88	
9	GLV	93635A156	93635A156	M5 x .8mm screws 10mm long	1	\$8.32	\$8.32	6-Apr-17
10	GLV	90272A194	90272A194	8-32 Thread Size Phillips Head Rounded Screws	1	\$3.14	\$3.14	6-Apr-17

Subtotal:	\$103.70
Shipping Fees	
Grand Total:	

APPENDIX XIV

ECE Department Material Request

Course: ECE 492
Professor: Nadovich/Schmult

Req Number: 40

Requested By: TSV / TSI
Requested Date: 5-Apr-17
Ship By: Ground

Vendor: GMW Associates
Web Site: www.gmw.com
Phone: 650-802-8292

#	Vendor PN	Description	Quantity	Unit Price	Total Price	Rcvd
1	BBM-01	Bus Bar Module DC Current Sensor	2	\$40.00	\$80.00	

Subtotal:	\$80.00
Shipping Fees:	
Grand Total:	

Instructor Approval: _____

URL: http://www.gmw.com/magnetic_sensors/ametes/BBM.html